Montana Department of Natural Resources and Conservation
Water Resources Division
Water Rights Bureau

ENVIRONMENTAL ASSESSMENT
For Routine Actions with Limited Environmental Impact

Part I. Proposed Action Description

1. Applicant/Contact name and address:

Lodestone Adventures, LLC
Joseph, Rita and Ryan Purdy
PO Box 1394
Eureka, MT 59917

2. Type of action: Application for Beneficial Water Use Permit 76D 30147623

3. Water source name: Groundwater

4. Location affected by project: The place of use is the North Star Landing Subdivision in the W2SW and NESW, Section 6, Township 36N, Range 27W, Lincoln County, Montana

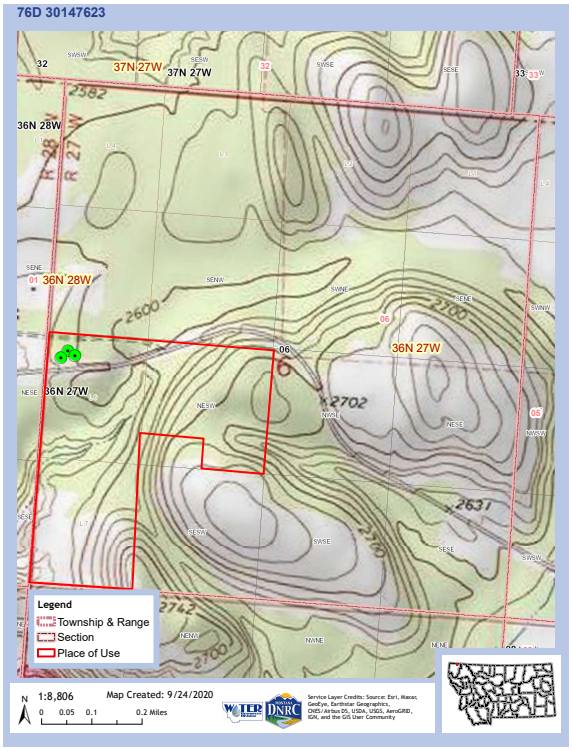

Figure 1: Map of Proposed Place of Use and Two Points of Diversion

5. Narrative summary of the proposed project, purpose, action to be taken, and benefits:

The Applicant proposes to divert groundwater at a rate of 154 GPM up to 62.97 AF from three wells (GWIC No. 300353, 303821 and 303822) in the NWNWSW of Section 6, Township 36N, Range 27W, Lincoln County, Montana. Each well will be limited to 80 GPM. When two well pumps operate simultaneously total flow will be limited to 154 GPM. The Applicant proposes to divert groundwater for multiple domestic use (125 residential lots) January 1st through December 31st and lawn and garden use (5.75 acres) April 15th through October 15th within the North Star Landing Subdivision. The DNRC shall issue a water use permit if an applicant proves the criteria in 85-2-311 MCA are met.

6. Agencies consulted during preparation of the Environmental Assessment: (include agencies with overlapping jurisdiction)

-U.S. Fish and Wildlife Service and Montana Natural Heritage Program: Endangered, Threatened Species and Species of Special Concern, Wetland Mapper program
-Montana Department of Fish Wildlife & Parks (DFWP); Dewatered Stream Information
-Montana Department of Environmental Quality's (MDEQ) Clean Water Act Information and PWS Drinking Water Watch databases
-U.S. Natural Resource Conservation Service (NRCS); web soil survey
-Montana Historical Society

Part II. Environmental Review

1. Environmental Impact Checklist:

PHYSICAL ENVIRONMENT

WATER QUANTITY, QUALITY AND DISTRIBUTION

Water quantity **-** *Assess whether the source of supply is identified as a chronically or periodically dewatered stream by DFWP. Assess whether the proposed use will worsen the already dewatered condition.*

The Applicant proposes to divert groundwater; depletions to Lake Koocanusa will occur. Lake Koocanusa is not listed by Montana Department of Fish Wildlife and Parks (MTFWP) as chronically or periodically dewatered. Upon analysis by the Department the source aquifer and Lake Koocanusa were found to have water in excess of that requested by the Applicant.

Determination: No impact.

Water quality **-** *Assess whether the stream is listed as water quality impaired or threatened by DEQ, and whether the proposed project will affect water quality.*

According to the Montana Department of Environmental Quality's (MTDEQ) Clean Water Act Information Center in 2020 Lake Koocanusa fully supported drinking water, primary contact recreation, and agriculture uses. Aquatic life is not fully supported due to high selenium levels and flow regime modifications. The Applicant is proposing to divert groundwater from three wells that will reduce groundwater discharge to Lake Koocanusa. The wells are approximately 2,400 east of Lake Koocanusa. The total volume of water depleted from Lake Koocanusa is 14.7 AF/annually (normalized rate of 9.1 GPM) and is expected to have little or no effect on the water quality of this source.

Determination: No impact.

Groundwater **-** *Assess if the proposed project impacts ground water quality or supply. If this is a groundwater appropriation, assess if it could impact adjacent surface water flows.*

The Applicant is proposing to divert groundwater from three wells. One or two wells will operate at once depending on demand and will produce 80 GPM (single well) to 154 GPM (two wells) and 62.97 AF/annually. The subdivisions' water system (potable and wastewater) was designed by a professional engineer and shall be approved by MTDEQ as a public water supply system prior to installation.

Groundwater flow paths immediately surrounding the wells will be altered due to the proposed project. Drawdown in other wells was evaluated using the Cooper-Jacob (1946) solution, with the following inputs: T = 1,103 ft^2/day, S = 0.001, and constant head boundaries to the west (Lake Koocanusa) and southeast (Tobacco River). The three proposed wells were modeled as one well due to their close proximity. After July of the fifth year of an assumed monthly pumping schedule no wells were found to go dry.

The source aquifer is hydraulically connected Lake Koocanusa and the shallow aquifer above it in localized locations. The total volume of water depleted from Lake Koocanusa is 14.7 AF/annually (normalized rate of 9.1 GPM) and is expected to have little or no effect on the water quality of this source.

Groundwater and surface water quality will not be negatively impacted.

Determination: No impact.

DIVERSION WORKS - *Assess whether the means of diversion, construction and operation of the appropriation works of the proposed project will impact any of the following: channel impacts, flow modifications, barriers, riparian areas, dams, well construction.*

The proposed appropriation will utilize the following three wells: GWIC No. 300353 (NS-6), GWIC No. 303821 (NS-7) and GWIC No. 303822 (NS-8). All wells are completed in a confined gravel and sand aquifer system referred to as the Deep Aquifer. The three wells are within 100 feet of each other. The wells were drilled by a licensed well driller (license No. WWC-651) in 2019 and in accordance with MCA Title 37, Chapter 43 and ARM Title 36,

Chapter 21. The subdivisions' water system was designed by a professional engineer and shall be approved by MTDEQ as a public water supply system prior to installation.

All three wells will have a submersible Goulds Model 85GS75 pump with a 7.5-hp motor (or equivalent). Based on the supplied pump curve, each pump is capable of producing 83 GPM when operating alone. A flow control valve will be utilized to restrict the flow from each well to 80 GPM. During periods of peak demand two of the well pumps will operate simultaneously to maintain the volume of water in storage. If two well pumps operate concurrently friction losses within the mainline will increase, thus combined they will only produce 154 GPM. The wells will be pumped on an alternating schedule, no more than two well pumps will operate at once.

Per MTDEQ Circular 1 3.2.1.1a, the total developed groundwater source capacity must equal or exceed the design maximum day demand (95 GPM) with the largest producing well out of service. The maximum rate of diversion from each well is limited to 80 GPM. Therefore, during periods of peak demand the water system will be required to operate two production wells simultaneously and three production wells are required.

Water storage is required to ensure sufficient supplies of water during periods of peak demand. Up to ten 10,500-gallon storage tanks (without freeboard) will be used to meet the peak instantaneous demand of 344 GPM (multiple domestic peak flow = 182.3 GPM and lawn and garden irrigation peak flow = 162.6 GPM). The source capacity (154 GPM) exceeds the minimum required capacity (95 GPM) per MTDEQ Circular 1 3.2.1.1a. MTDEQ does allow storage volume to be reduced when the source capacity is greater than the required capacity. In the future, the Applicant may seek a reduction in volume of storage required by MTDEQ.

When the water level in the storage tanks drop below a predetermined level, the lead well pump will cycle on. If the water level continues to drop a second well pump will cycle on. Water from the storage tanks is distributed through the system by a skid mounted booster pump station capable of producing up to 345 GPM at a minimum operating pressure of 35 psi at each of the residences. The booster pump station shall include a smaller pump to act as a pressure maintenance pump during periods of low flow and a larger pump for periods of peak demand. 125 lots will be served by the water system. Each lot will be metered, and the Covenants, Conditions, and Restrictions associated with the subdivision will be used to enforce water conservation as necessary. The proposed project shall not impact any channels, barriers, riparian areas and dams. Groundwater flow to surface waters will be modified. Modeling done by Department hydrogeologists show that no significant negative impact will occur to existing water users and surface/groundwater resources.

Determination: No impact.

UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES

Endangered and threatened species **-** *Assess whether the proposed project will impact any threatened or endangered fish, wildlife, plants or aquatic species or any "species of special concern," or create a barrier to the migration or movement of fish or wildlife. For groundwater, assess whether the proposed project, including impacts on adjacent surface flows, would impact any threatened or endangered species or "species of special concern."*

The Montana Natural Heritage Program website was reviewed to determine if there are any threatened or endangered fish, wildlife, plants or aquatic species or any "species of special concern" in Township 36N, Range 27W that could be impacted by the proposed project.

Two plant species are listed as threatened by the USFS; the Spalding's Catchfly (Silene spaldingii), and Water Howellia (Howellia aquatilis). The Moonwort (Botrychium sp.), Nevada Clubrush (Amphiscirpus nevadensis), Wood Lilly (Lilium philadelphium), and Water Bulrush (Schoenoplectus subterminatlis) are rated either S1S3, S2, and S3 by the state of Montana. Meaning their populations are potentially at risk because of limited and or declining numbers.

The Bull Trout (Salvelinus confluentus) and Grizzly Bear (Ursus arctos) are listed as threatened by the USFS. The Westslope Cuthroat Trout (Oncorhynchus clarkii lewisi), Western Toad (Anaxyrus boreas), Flammulated Owl (Psiloscops flammeolus), Common Loon (Gavia immer) and Fisher (Pekania pennant) are listed as sensitive by the USFS. The Hoary Bat (Lasiurus cinereus), Little Brown Myotis (Myotis lucifugus), Fringed Myotis (Myotis thysanodes), Yuma Myotis (Myotis yumanensis), Brown Creeper (Certhia americana), Pileated Woodpecker (Dryocopus pileatus), Torrent Sculpin (Cottus rhotheus), Hooked Snowfly (Isocapnia crinite) and Alberta Snowfly (Isocapnia integra) are rated as S2, S3 or S3B by the state of Montana. Meaning their populations are potentially at risk because of limited and or declining numbers. Development has occurred around this parcel of land for many years; any impacts to sensitive mammal species most likely has already occurred. No impact.

The proposed project will not impact any threatened or endangered fish, wildlife, plants and aquatic species or any species of special concern.

Determination: No impact.

Wetlands **-** *Consult and assess whether the apparent wetland is a functional wetland (according to COE definitions), and whether the wetland resource would be impacted.*

Determination: N/A, project does not involve wetlands or critical riparian habitats

Ponds **-** *For ponds, consult and assess whether existing wildlife, waterfowl, or fisheries resources would be impacted.*

Determination: N/A, project does not involve ponds.

GEOLOGY/SOIL QUALITY, STABILITY AND MOISTURE **-** *Assess whether there will be degradation of soil quality, alteration of soil stability, or moisture content. Assess whether the soils are heavy in salts that could cause saline seep.*

According to soil survey data provided by the USDA NRCS, soil within the place of use consists mostly of sandy loam, gravelly loam and extremely gravelly sandy clay loam. The soil drainage class is well drained to moderately drained; the capacity of the most limiting layer of soil to transmit water is moderately high (0.21 to 0.71 in/hour). Soils within the place of use are not susceptible to saline seep. The stability of the soil profile and moisture content will not be significantly altered with the use of groundwater within the subdivision. No degradation of soil quality shall occur.

Determination: No impact.

VEGETATION COVER, QUANTITY AND QUALITY/NOXIOUS WEEDS - *Assess impacts to existing vegetative cover. Assess whether the proposed project would result in the establishment or spread of noxious weeds.*

The development of this subdivision will remove/disturb existing vegetation. Noxious weeds could be established or spread during construction. Each resident is encouraged to limit their water use associated with lawn and garden irrigation and/or plant native vegetation when possible. Management of noxious weeds will be encouraged.

Determination: No impact.

AIR QUALITY - *Assess whether there will be a deterioration of air quality or adverse effects on vegetation due to increased air pollutants.*

Adverse air quality impacts from increased air pollutants are not expected as a result of this project. No air pollutants were identified as resulting from the applicants proposed use of groundwater.

Determination: No impact.

HISTORICAL AND ARCHEOLOGICAL SITES - *Assess whether there will be degradation of unique archeological or historical sites in the vicinity of the proposed project if it is on State or Federal Lands. If it is not on State or Federal Lands simply state NA-project not located on State or Federal Lands.*

Determination: N/A, project is not located on state or federal land.

DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AND ENERGY - *Assess any other impacts on environmental resources of land, water and energy not already addressed.*

All impacts to land, water and energy have been identified and no further impacts are anticipated.

Determination: No impact.

HUMAN ENVIRONMENT

LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS - *Assess whether the proposed project is inconsistent with any locally adopted environmental plans and goals.*

The project is located in an area with no locally adopted environmental plans.

Determination: No impact.

ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES - *Assess whether the proposed project will impact access to or the quality of recreational and wilderness activities.*

The proposed project will not inhibit, alter or impair access to present recreational opportunities in the area. The project is not expected to create any significant pollution, noise, or traffic congestion in the area that may alter the quality of recreational opportunities. The proposed place of use and diversion do not exist on land designated as wilderness.

Determination: No impact.

HUMAN HEALTH - *Assess whether the proposed project impacts on human health.*

There should be no significant negative impact on human health from this proposed use.

Determination: No impact.

PRIVATE PROPERTY - *Assess whether there are any government regulatory impacts on private property rights.*
*Yes___ No_**x**__ If yes, analyze any alternatives considered that could reduce, minimize, or eliminate the regulation of private property rights*.

Determination: No impact.

OTHER HUMAN ENVIRONMENTAL ISSUES - *For routine actions of limited environmental impact, the following may be addressed in a checklist fashion.*

Impacts on:

(a) Cultural uniqueness and diversity? None identified.

(*b) Local and state tax base and tax revenues?* None identified.

(c) Existing land uses? None identified.

(*d) Quantity and distribution of employment?* None identified.

(e) Distribution and density of population and housing? None identified.

(f) Demands for government services? None identified.

(g) Industrial and commercial activity? None identified.

(h) Utilities? None identified.

(i) Transportation? None identified.

(j) Safety? None identified.

(k) Other appropriate social and economic circumstances? None identified.

2. *Secondary and cumulative impacts on the physical environment and human population:*

Secondary Impacts: None identified.

Cumulative Impacts: None identified.

3. *Describe any mitigation/stipulation measures:* None identified.

4. *Description and analysis of reasonable alternatives to the proposed action, including the no action alternative, if an alternative is reasonably available and prudent to consider:* No reasonable alternatives were identified in the EA.

PART III. Conclusion

1. Preferred Alternative: None identified.

2 Comments and Responses: None.

3. *Finding:*
*Yes___ No_**x**__ Based on the significance criteria evaluated in this EA, is an EIS required?*

If an EIS is not required, explain why the EA is the appropriate level of analysis for this proposed action:

An EA is the appropriate level of analysis for the proposed action because no significant impacts were identified.

Name of person(s) responsible for preparation of EA:

Name: Melissa Brickl
Title: Hydrologist/Water Resource Specialist
Date: January 6, 2021